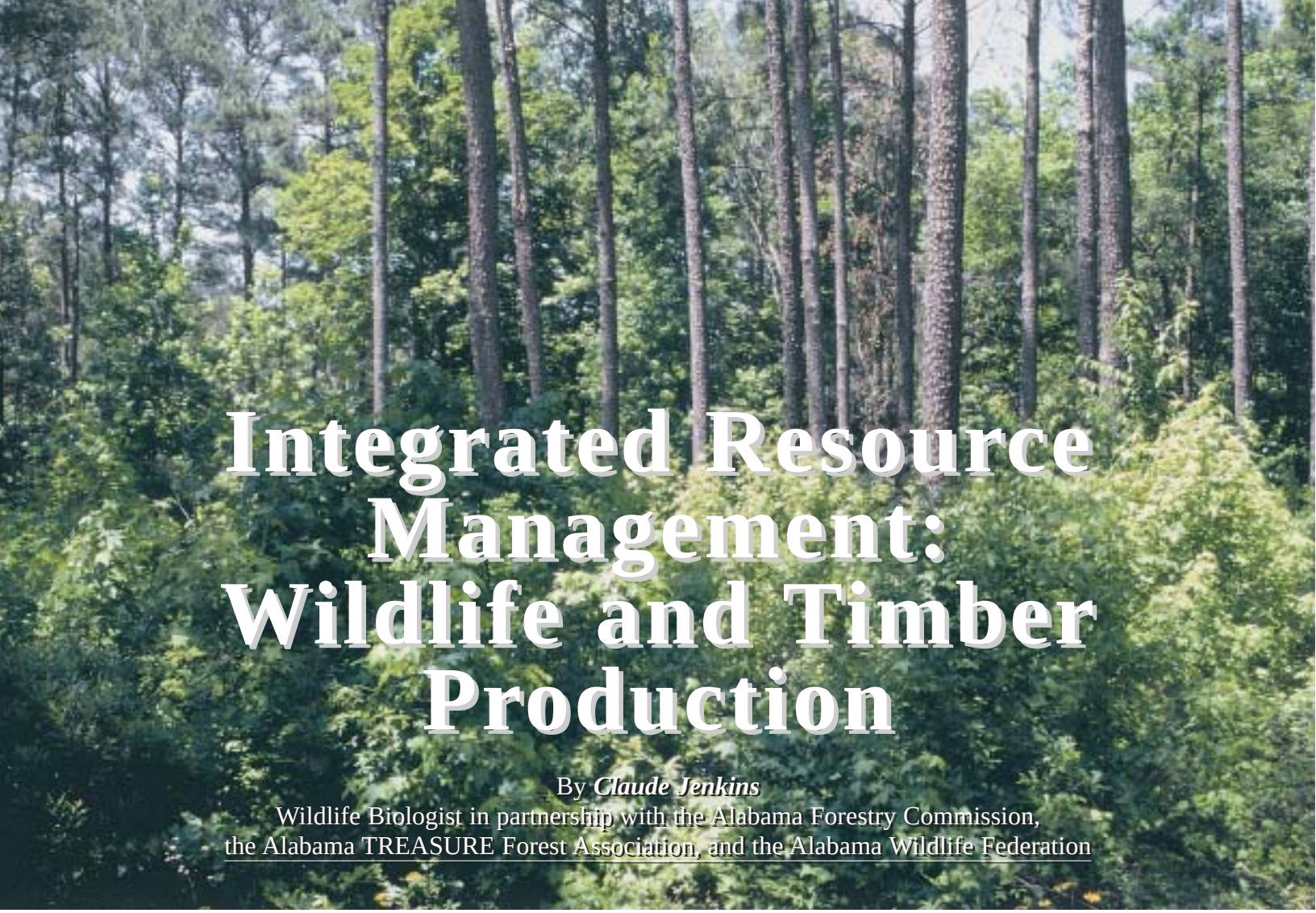

Integrated Resource Management: Wildlife and Timber Production

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A dense sweetgum understory reduces plant species diversity and leaves few places for wildlife to exist and thrive.

The viability of wildlife populations in Alabama is largely determined by land management decisions of private landowners. According to the 2000 Forest Inventory and Analysis Survey (FIA), conducted by the U.S. Department of Agriculture, Forest Service, 71 percent of Alabama is covered in forests. Of this forestland, 78 percent is owned by private non-industrial landowners. Forest industry owns 16 percent and the remaining 6 percent is public forests. These privately owned forests produce fiber to meet local, state, and global markets, but they also provide habitats for hundreds of wildlife species. So, again, if we are going to impact wildlife populations on a statewide scale, it will be accomplished on private lands.

Roadside Management for Wildlife

After site preparation and two to three years after reforestation, habitat is generally characterized by an abundance of forbs, legumes, and grasses that provide food and cover for wildlife adapted to early successional forest communities. Rabbits, deer, turkeys, bobwhites, and many non-game birds will utilize such areas. Additionally, raptors, bobcats, and other predators will find small mammals and other food abundant. As pine seedlings grow, however, their expanding crowns shade out plants beneficial to wildlife adapted to these areas. Also, the rapidly growing seedlings out-compete herbaceous plants for water, nutrients, and space. These “pine thickets” consist of dense pine trees, blackberry vines, and shrubs that provide excellent protective cover for deer and songbirds that prefer thick habitat, such as rufous-sided towhees and indigo buntings. Eventually, the pine canopy will completely close and stand-interior habitat will be lost. These conditions are often described as “biological deserts.”

Landowners can maintain wildlife habitat throughout the rotation of a pine stand by implementing a roadside management program. Trees and brush should be removed on both sides of roads (if possible) approximately 30 to 60 feet. Initial clearing of roadsides can be done during a scheduled timber harvest. Once roadsides have been cleared, mow or disk roadside habitat every two to three years to maintain a diversity of weeds, grasses, and vines beneficial to wildlife. According to radio-telemetry studies in Mississippi, turkey use of pine plantations was greatly influenced by the presence of roads. Turkeys tended to utilize plantations if roads were present. The roadsides provided essential brood habitat and food for all age classes of turkeys. Turkeys utilize roads and roadsides as travel lanes to go from one habitat to another. Turkeys can avoid unsuitable habitat by walking on roads that link better habitat.

Roads can be bad for wildlife if access is not controlled. Studies in North Carolina indicate that human disturbance on roads must be limited to benefit turkeys. In areas with excessive traffic, turkey use of roads was minimal. In Virginia, road access was determined to be a key factor in the number of turkeys killed and an increase in crippling losses. As wildlife becomes more visible, people management becomes essential. People can be managed by installing gates on roads to prevent road hunting, poaching, and illegal dumping. Under a roadside management program, a gate will be the most important wildlife management tool.

SMZs provide critical habitats for many wildlife species and contribute to the biological diversity in pine production systems.

Understory Management in Production Forests

Commonly, following a thinning operation, sweetgum (and other hardwoods) quickly colonize the understory. Sweetgum is a highly prolific species that out-competes understory plants for water, nutrients, space, and sunlight. Consequently, a dense stand of sweetgum develops, reducing plant species diversity and leaving few places for wildlife to exist and thrive. However, with deliberate management, an understory dominated with sweetgum and other hardwood competition can be shifted to an understory comprised of herbaceous plants beneficial to wildlife. Prescribed fire can be used to kill sweetgums and release plants that provide forage for deer, food and cover for rabbits, and flowering plants that attract a multitude of insects, butterflies, and songbirds. Also, a fire-maintained understory could provide essential nesting and brood-rearing habitats for bobwhite quail and wild turkeys. It will be important that landowners and forest managers implement a prescribed burning program as soon as possible to control hardwood competition. A passive approach to managing forest understories may not be adequate to manage habitats for a particular wildlife species and accomplish landowner goals. Frequency and timing of burns are important considerations when preparing prescribed burn plans.

Prescribed fire can be used to kill sweetgum and other hardwood competition and increase the number of plant species beneficial to wildlife.

With advanced hardwood succession, fire alone may not adequately reduce hardwood competition. Herbicide treatment may be needed to kill hardwoods and set back plant succession. Following herbicide treatment, a prescribed burning program can be implemented to control hardwoods and maintain a desirable understory. Research scientists in the Department of Wildlife and Fisheries at Mississippi State University are in the fourth year of a ten-year study to measure the effects of pine forest management practices on songbird communities. The researchers are monitoring bird response to three competition-control practices in loblolly pine stands: prescribed burning, herbicide treatment, and a combination of prescribed burning and herbicide. All treatments altered the plant community and initial results indicated a reduction in total bird abundance and species richness (i.e. number of species). However, while some species were reduced during the first year of the study, on herbicide-treated plots some species increased including morning dove, eastern wood-pewee, hairy wood-

(Continued on page 10)

Integrated Resource Management: Wildlife and Timber Production

(Continued from page 9)

pecker, indigo bunting, and great crested flycatcher. The researchers found that a combination of herbicide and prescribed burning had conservation benefits by improving habitat for some species. The appropriate treatment for an area will depend on the species of birds landowners want to manage.

Streamside Management Zones

Streamside management zones (SMZs) are buffer strips of vegetation adjacent to permanent or intermittent streams or other water bodies (sloughs, lakes, etc.) generally composed of hardwoods or mixed pine-hardwoods. SMZs are critical areas because of their ecological significance and the environmental benefits they provide. They help maintain the biological integrity of aquatic environments by stabilizing stream banks and reducing sedimentation, which improves light penetration and productivity of aquatic systems. Woody debris that has fallen into the streams stabilizes the stream channel and provides a substrate for aquatic invertebrates and cover for fishes.

SMZs provide critical habitats for many wildlife species. They provide seasonal habitats for upland wildlife such as wild turkeys and white-tailed deer. Migratory wildlife such as waterfowl and songbirds depend on these areas for food and cover. SMZs that contain a complex vegetation structure (multiple canopy layers, shrubs, vines, etc.) will provide more available resources for birds with different reproductive and foraging strategies. Trees with cavities provide dens for squirrels and raccoons as well as nests for owls and wood ducks. SMZs serve as travel corridors, linking isolated populations of a particular wildlife species. SMZs with closed canopies, fallen trees, seasonal pools, etc., will provide adequate habitat and protection for many reptiles and amphibians.

A landowner's management goals, site conditions (soil type, slope, ground cover), and other factors will determine the width of SMZs. Although SMZs do not meet all requirements for every wildlife species, wide SMZs that enhance habitat diversity generally will support a more diverse wildlife community. Landowners interested in protecting the ecological value of SMZs and contributing to the biological diversity in pine production systems should protect these highly critical areas.

Conclusion

Often forest management activities are primarily driven by economic considerations. However, successful integrated resource management requires a more deliberate and pre-meditated approach. Deliberately managing forestland can increase revenue from the timber resource, increase recreational opportunities for consumptive and non-consumptive users, improve environmental quality, and sustain quality wildlife habitat. Because landowners plan for these benefits, they are able to take advantage of the opportunities they provide and ensure a healthy forest environment for future generations.

Landowners can maintain wildlife habitat throughout the rotation of a pine stand by establishing roadside habitat. These areas can be established during a scheduled timber harvest.